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Patent

Attorney Docket No. SSPI0015.001

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Kolb et al.  
Serial No. : 10/604,593  
Filed : August 1, 2003  
For : SINGLE COIL SOLENOID HAVING A PERMANENT  
MAGNET WITH BI-DIRECTIONAL ASSIST  
Group Art No. : 2832  
Examiner : Rojas, B.

## CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

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## 37 CFR 1.8(a)

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**PETITION UNDER 37 C.F.R. §1.144 FOR SUPERVISORY  
REVIEW OF RESTRICTION REQUIREMENT**

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Dear Sir:

Enclosed is a Credit Card Authorization in the amount of \$130.00 for payment of the Petition fee. Responsive to the Office Action mailed June 30, 2004, Petitioner petitions for review by the Director of the Restriction Requirement in the above-referenced case. For the Director's convenience, a complete listing of the claims precedes Petitioner's substantive remarks.

08/19/2004 HALI11 00000018 10604593

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INVENTOR: Kolb, Richard P.

S/N: 10/604,593

**CLAIMS:**

1. (Original) A solenoid comprising:  
a magnetically conductive shell having a single coil of wound wire;  
a movable magnetic object disposed within a bore of the single coil, the object configured to receive a magnetic force when current is induced in the single coil; and  
a permanent magnet having a fixed polarity that repels the moveable magnetic object when current is induced in the single coil and attracts an end of the movable magnetic object when no current is induced in the single coil.
2. (Original) The solenoid of claim 1 wherein the moveable magnetic object includes one of a plunger or an armature.
3. (Original) The solenoid of claim 1 further comprising a non-magnetic spacer disposed between the permanent magnet and the movable magnetic object.
4. (Original) The solenoid of claim 3 further comprising a return spring operationally connected to bias the movable magnetic object in a return position against the spacer when no current is induced in the single coil.
5. (Original) The solenoid of claim 4 further comprising an end plate connected to an end opposite to that of the return spring and an attracting stud connected to the end plate, the attracting stud having a polarity opposite to that of the movable magnetic object when current is induced with a specific electrical polarity in the single coil.
6. (Original) The solenoid of claim 5 further comprising a housing having the single coil, the plunger, the spacer, and a bobbin disposed therein.
7. (Original) The solenoid of claim 6 wherein the single coil is wrapped around the bobbin.
8. (Original) The solenoid of claim 7 further comprising a number of shunt components connected to the bobbin.

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9. (Original) The solenoid of claim 8 wherein the number of shunt components is configured such that as distance of the shunt components from the permanent magnet increases a hold force between the plunger and permanent magnet decreases.

10. (Original) The solenoid of claim 8 further comprising an air gap between the number of shunt components and the housing.

11. (Currently Amended) An electromagnetic switching apparatus comprising:  
a bobbin having a single coil of wire wrapped therearound;  
a movable armature disposed within the single coil; and  
a permanent magnet separated from the armature by a non-magnetic spacer  
wherein the permanent magnet attracts the armature when the single coil is de-energized and repels the armature when the single coil is energized.

12. (Original) The apparatus of claim 11 further comprising an end plate and attracting stud connected to one end of the bobbin wherein the attracting stud attracts the armature when the single coil is energized.

13. (Original) The apparatus of claim 12 further comprising a return spring configured to bias the armature against the spacer when the single coil is de-energized.

14. (Original) The apparatus of claim 13 wherein the armature is further configured to have a first polarity when the single coil is de-energized and a second polarity when the single coil is energized.

15. (Original) The apparatus of claim 14 wherein the second polarity matches a plurality of the permanent magnet.

16. (Original) The apparatus of claim 14 wherein the second polarity is opposite to a polarity of the end plate.

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17. (Original) The apparatus of claim 11 further comprising a plurality of shunt components disposed radially around the actuator between the single coil and the permanent magnet.

18. (Withdrawn) A method of manufacturing a single coil solenoid with permanent magnet bi-directional assist comprising the steps of:

- wrapping a single electro-conductive wire around a bobbin;
- securing a plunger within a bore of the bobbin;
- disposing a spacer and a permanent magnet at one end of the plunger;
- biasing the plunger in a first position against the spacer; and
- placing an end plate having an attracting stud at an end of the bobbin opposite to that of the permanent magnet.

19. (Withdrawn) The method of claim 18 further comprising the step of securing a return spring to be operationally connected to the plunger such that the return spring biases the plunger against the spacer when current is not induced in the wire.

20. (Withdrawn) The method of claim 18 further comprising the step of configuring the plunger to have a polarity similar to that of the permanent magnet when current is not induced in the wire and to have a polarity opposing that of the permanent magnet when current is induced in the wire.

21. (Withdrawn) The method of claim 18 further comprising the step of placing a set of shunt components radially around the plunger between the permanent magnet and the wire.

22. (Withdrawn) A single coil solenoid comprising:  
a first magnetic circuit between a plunger and a permanent magnet spaced from the plunger at a first electromagnetic condition created when a single coil of wire is not energized; and

a second magnetic circuit between the plunger and an attracting member at a second electromagnetic condition created when the single coil of wire is energized.

23. (Currently Amended) A solenoid kit comprising:

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a bobbin configured to receive a single coil of wire wrapped therearound;  
a permanent magnet having a fixed polarity;  
an armature configured to move linearly through a bore of the single coil-bobbin;  
and  
a non-magnetic spacer to be disposed between the permanent magnet and the armature.

24. (Original) The kit of claim 23 further comprising a housing and an end plate connected to the housing, the end plate including an attracting stud having a polarity opposite to that of the permanent magnet.

25. (Original) The kit of claim 23 wherein the armature is configured to have an attraction to the permanent magnet when no current is induced in the single coil.

26. (Original) The kit of claim 23 further comprising a return spring connectable to the armature.

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**REMARKS**

In the Office Action mailed June 30, 2003, the Examiner made final a restriction of claims 18-22 that was originally presented in the Office Action mailed February 26, 2004. Petitioner filed an Election and Response to the Restriction Requirement on March 12, 2004 (copy enclosed). Petitioner presented remarks traversing the grounds for restriction and requested rejoinder of all claims. Responsive thereto, the Examiner stated that "[t]he traversal is on the grounds that there is no support for the conclusion that the product, as claimed can be made by another materially different process" and that "this is not found persuasive because there are many ways in which to secure a plunger within a bore of a bobbin or to bias the plunger such as the use of a conical spring, a leaf spring or magnetic biasing."

In order to support a restriction between a process of making and product made, MPEP §806.05(f) requires that the Examiner show "(A) that the process *as claimed* is not an obvious process of making the product and the process *as claimed* can be used to make other and different products; or (B) that the product *as claimed* can be made by another and materially different process." (Emphasis in original).

In making the restriction final, the Examiner stated that "there are many ways in which to secure a plunger within a bore of a bobbin or to bias the plunger such as the use of a conical spring, a leaf spring, or magnetic biasing." Such a conclusion disregards the "*as claimed*" requirement for imposing a restriction under MPEP §806.05(f). Simply, none of the independent claims 1, 11, 22, and 23, of Group I or claim 18 of Group II specifies how the plunger is secured to the bobbin or the modality of biasing the plunger. Claim 11, for example calls for, in part, (1) a bobbin having a single coil of wire wrapped therearound, (2) a movable armature disposed within the single coil, and (3) a permanent magnet separated from the armature by a non-magnetic spacer. Likewise, claim 18 calls for, in part, (1) wrapping a single electro-conductive wire around a bobbin, (2) securing a plunger within a bore of bobbin, and (3) disposing a spacer and a permanent magnet at one end of the plunger. Neither claim 11 nor claim 18, as claimed, specifies a modality of securing the plunger within the bore of the bobbin or a modality of biasing the plunger.

MPEP §806.05(f) states that "defining the product in terms of a process by which it is made is nothing more than a permissible technique that applicant may use to define the invention." From the claim comparison above, in accordance with MPEP §806.05(f), it is apparent that Petitioner has defined the product (claim 11) in terms of a process by which it is



INVENTOR: Kofb, Richard P.

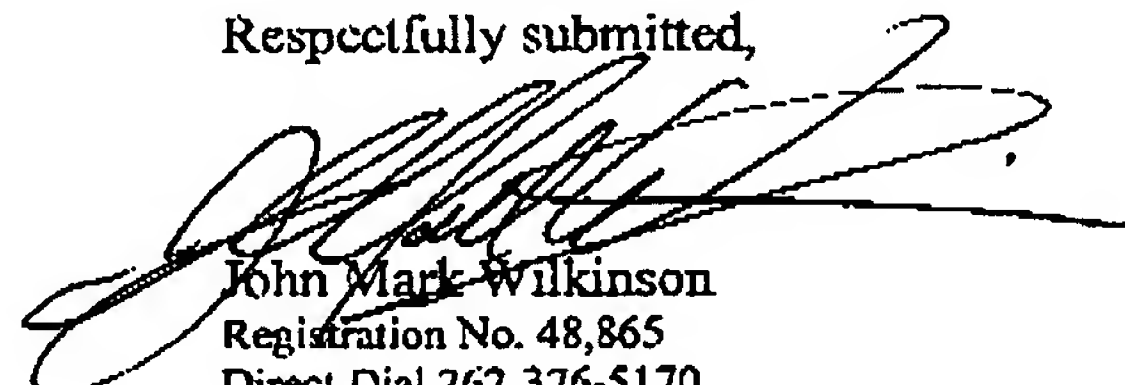
S/N: 10/604,593

made (claim 18). Petitioner does not necessarily disagree that "there are many ways in which to secure a plunger within a bore of a bobbin or to bias the plunger"; however, as cited above, none of the claims of the present application include or exclude the Examiner's interpretation. That is, each of the Examiner's interpretations is within the scope of each of the independent claims. In comparing the independent claims of Group I and Group II, it appears the Examiner is reading limitations into the claims that are not recited therein in an effort to support the restriction. As such, upon comparing the product as claimed to the process of making as claimed, restriction between claims 1-17 and 22-25 of Group I and claims 18-21 of Group II is clearly improper. Accordingly, Petitioner requests the rejoinder of all claims.

Additionally, in responding to the Restriction Requirement of March 12, 2004, Petitioner elected with traverse what the Examiner characterized as Group I consisting of claims 1-17 and 22-25. In the Office Action of June 30, 2004, the Examiner has additionally withdrawn from consideration claim 22. Claim 22 was included in the Group of elected claims. As such, Petitioner requests, at a minimum, that claim 22 be re-grouped within Group I and that the finality of the restriction requirement be removed. Notwithstanding the inconsistency in the Examiner's restriction, Petitioner does not believe restriction is warranted. Accordingly, Petitioner requests rejoinder of all claims.

Any questions regarding this matter may be directed to the undersigned.

Respectfully submitted,



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Attorney Docket No. SSP10015.001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Kolb et al.  
Serial No. : 10/604,593  
Filed : August 1, 2003  
For : SINGLE COIL SOLENOID HAVING A  
PERMANENT MAGNET WITH  
BI-DIRECTIONAL ASSIST  
Group Art No. : 2832  
Examiner : Rojas, B.

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

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Transmission

☒ transmitted by facsimile to Fax No.: 703-872-9306 addressed to Examiner Rojas at the Patent and Trademark Office.

Date: 3-2-04

James A. Jordan  
Signature

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Docketed by: 7/14  
Date: 3/12/04

RESPONSE TO 2-26-2004 ELECTION/RESTICTION

Dear Sir:

Responsive to the Restriction Requirement mailed February 26, 2004, please enter the following election with traverse and consider the following comments for rejoinder.



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### ELECTION

Applicant elects, with traverse, what the Examiner has characterized as "Invention I", deemed drawn to a solenoid, and corresponding to claims 1-17 and 22-26.

### REMARKS

The Examiner has identified two 'inventions' in the pending claims. The Examiner's classification of the 'inventions' include Group I consisting of claims 1-17 and 22-26, drawn to a solenoid and classified by the Examiner in class 335, subclass 220 and Group II consisting of claims 18-21 drawn to a method of manufacturing a solenoid and classified by the Examiner in class 29, subclass 622.

The Examiner states that "[i]nventions I and II are related as process of making and product made." The Examiner further states that:

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case that the product as claimed can be made by another materially different process.

The Examiner has provided no support, such as an example, for the conclusion that the product, as claimed, can be made by another materially different process. MPEP §805(f) states that "[a] product defined by the process by which it can be made is still a product claim [citation omitted] and can be restricted from the process if the examiner can demonstrate that the product as claimed can be made by another materially different process ..." (Emphasis added). Merely stating that "the product as claimed can be made by another materially different process" is not a demonstration that the product as claimed can be made by another materially different process, as required under MPEP §806.05(f). As a result, rejoinder is required.

The Examiner further states that "[b]ecause these inventions are distinct for the reasons given above and have acquired separate status in the art as shown by[:] their different classifications, ..., the search required for Group II is not required for Group I, ..., and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper." The only reason that the Examiner has provided in support of restriction is the conclusionary statement that the product as claimed can be made by another materially different process. The Examiner has not demonstrated that such is the case. Specifically, in Examiner Note 2 of MPEP §806.05(f), the Examiner is required

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to demonstrate such an assertion by stating that "the process as claimed can be used to make a materially different product such as ..." or stating that "the product as claimed can be made by a materially different process such as ...." (Emphasis added). Failing to provide an example of a materially different product or a materially different process, as required under MPEP §806.05(f), requires rejoinder of the claims. At least for those reasons argued above, restriction between the claims of Group I and the claims of Group II is not proper.

Additionally, claim 18 of Group II calls for, in part, a method of manufacturing a single coil solenoid including the step of wrapping a single electro-conductive wire around a bobbin. Likewise, claims 1, 11, 22, and 23 of Group I each call for, in part, a solenoid having a single coil of wire. As MPEP §806.05(f) states, "defining the product in terms of a process by which it is made is nothing more than a permissible technique that applicant may use to define the invention." Applicant has claimed the product of claims 1, 11, 22, and 23 in the process of claim 18. As cited above, such claiming is explicitly permissible under the MPEP.

Additionally, due to the similarity of elements between the claims of Group I and Group II, an examination of the claims of Group II requires a search of the class and subclass of Group I, and vice-versa. That is, examination of either Group I or Group II requires a search of at least all of the classes and subclasses cited by the Examiner. As such, restriction between Group I, consisting of claims 1-17 and 22-26, and Group II, consisting of claims 18-21, is not required.

For all these reasons, Applicant respectfully requests rejoinder of all claims, of each group. The Examiner is invited to call the undersigned to discuss this Election or any other matters regarding this application to further prosecution.

Respectfully submitted,



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